Request for Proposal (RFP)

For Design, Supply, Installation, Testing & Commissioning of 1500 Kg/day Biogas Plant
Location: Rohtak, Haryana

Date: 7th October 2025

1. Introduction

Saahas invites Request for Proposal (RFP) from qualified and experienced bidders to submit proposals for the **Design, Supply, Installation, and Commissioning (DSIC)** of a **1500 kg/day biogas plant** based on organic kitchen and food waste.

The project aims to create **sustainable and state-of-the-art facility** that:

- Efficiently process primary **segregated kitchen waste** from urban sources,
- Generate clean biogas for cooking application.
- Provide nutrient-rich slurry for use as organic fertilizer,
- Minimize carbon emissions and maximize circular economy outcomes.

2. Eligibility Criteria

Bidders must meet the following eligibility conditions:

1. **Experience**:
    - The bidder should have successfully installed and commissioned **at least 10 biogas plants** in India.
    - Out of these, at least **3 plants of capacity 1 TPD or above** must be commissioned based on organic kitchen waste.
    - The bidder should currently operate **at least 3 plants in North /Central India**.
2. **Financial Strength**:
    - The bidder should have had a **minimum turnover of INR 5 Crores or above** in each of the last three financial years (audited statements to be submitted).
3. **Legal Compliance**:
    - The bidder must be a registered legal entity in India and comply with all statutory and regulatory requirements. (Details like , Company Registration, Legal Status, PAN, TIN, GST, Bank details, Quality Certifications need to be submitted)

3. Technical Specifications

The successful bidder shall be responsible for providing a complete solution for the biogas plant based on the principles of Integrated Solid Waste Management. The plant should be capable of handling a daily waste capacity of 1500 kg/day. The system should be designed to effectively process organic waste, generate biogas, produce and liquid manure as a by-product.

For this purpose the contractor shall set up facilities on the area allocated of 1600 Sq. Ft by the client. The Client shall provide the connections for water and electricity.

The proposed plant must comply with the following technical requirements:

1. **Plant Capacity**:
    - Designed for **maximum input of 1500 kg/day of organic kitchen/food waste**.
2. **Technology Requirements**:
    - Incorporate **latest technology** with **minimal human intervention** for waste handling, digestion, biogas generation and supply of gas to application point with constant pressure.
    - Provision for **easy and safe handling gas and by product**.
3. **Gas Monitoring & Measurement**:
    - Integrated **daily gas generation tracking mechanism** using **universal measurement standards**, e.g.:
        - Thermocouple-based Gas Flow Meter, or
        - Ultrasonic Gas Flow Meter.
    - A **Gas Analyser** must be included to measure the different components of biogas (Methane %, CO_2 %, H_2S %, etc.).
    - Safely deliverable of generated biogas to the point of cooking application with suitable consent pressure.
4. **Other Features**:
    - Robust and easy-to-maintain design.
    - Compliance with **environmental and safety standards**.
    - Scalable for future integration/upgrades.

5. The attached Schedule of Requirements (SOR) is a document of reference for bidder to procure and install the items mentioned in it but not limited to the item mentioned, to a fully functional Biogas Plant

3A. Scope of Work (SOW) & Responsibility

The selected bidder shall be responsible for the **end-to-end execution** of the biogas plant project, including but not limited to:

1. Setting up the 1500 kg Capacity Biogas Plant:

This solution will encompass the entire waste management process, including secondary segregation, efficient waste digestion for biogas production, and environmentally friendly disposal of by-products and remaining materials

I. Design & Engineering

1) Preparation and submission of detailed **plant layout, PFD (Process Flow Diagram), and P&ID**.
2) Engineering design of digester, gas handling, storage, and utilization systems.
3) Civil, electrical, mechanical, and instrumentation design.

II. Procurement & Supply

1) Supply of all plant equipment including digesters, gas storage, piping, gas analyser, flow meters, safety devices, and control systems.
2) Auxiliary systems: feed handling, slurry management, flare system and safety equipment.
3) Safe transportation of all equipment to site.

III. Civil & Structural Works

1) Contractor shall consider and quote for all civil work required for the plant. Site will be provided with proper leveling.

IV. Installation & Commissioning

1) Mechanical, electrical, and instrumentation installation.
2) Integration of gas flow meters and gas analyser.

3) The contractor shall comply with all the relevant environmental laws. Necessary emission control mechanisms shall be adopted by the contractor. The technology used shall not emanate foul smell and disturb the environment.
4) Trial runs and commissioning (defined in detail in point 20 in General Requirement section).
5) Preparation of **as-built drawings and commissioning reports**.

V. Operations & Maintenance

1) The proposal should clearly outline the operational requirements including water, electricity, communication, manpower etc. to run the site.
2) Carbon savings from the output vs. inputs needs to be calculated and shown.
3) Equivalence table of different fuels vs. biogas including PNG, LPG and CNF as observed Practically through experience.

Note - Requirement for commissioning of plant: The contractor shall submit the details of land, water and electricity requirements for setting up the plant.

SALIENT FEATURES OF THE OFFERED PLANT

General Requirements

1. The RFP is for the Design, Supply, Installation, testing and commissioning of a Biogas plant with a nominal capacity of 1500 kg/day of purely biodegradable (wet waste) material. The plant shall run in full capacity and capable of achieving the daily throughput of 1500 kg/day as specified above. It is the contractor's obligation to size the equipment in accordance with the operating requirements of the plant.
2. The plot available for installation of the Biogas plant is 1600sq ft approx.
3. The system should be designed for minimal manual intervention and ensure efficient operation in the longer run, taking advantage of the natural processes involved.
4. The system should not generate any bad odour, pollution and further garbage. The system should be eco-friendly and harmless to humans and animals.
5. The Biogas plant shall comprise a digester designed for anaerobic decomposition of the slurry. The slurry will be pumped into the digester, where the organic material will undergo the process of anaerobic digestion, resulting in the generation of biogas. The biogas produced should be automatically stored in a balloon through a piping system. The Biogas will further be compressed & utilized as cooking gas to be used in the kitchen of the building with required pressure.

6. The Digester where the anaerobic digestion takes place shall be leak proof made in Mild Steel. No leachate generated shall leak onto the floor.
7. The equipment shall include a crusher/hammer mill specifically designed for converting food/kitchen/ wet waste into slurry.
8. Any Mild Steel parts that form part of the plant shall have appropriate FRP/ epoxy coat to reduce corrosion problems.
9. The other parts of the system will include compressor, gas storage, gas flow meter, control panel, solid liquid separator, Feed Tank and Slurry storage tank etc.
10. The plant will be equipped with a 4 -6 burner and a pipeline extending up to 250 -400 meters for cooking purposes.
11. The biogas plant shall include a gas capture system to effectively collect the gases generated during the digestion process. The inherent design of the plant must ensure the containment and utilisation of the biogas, eliminating any potential odour-related concerns.
12. The machine shall have both visual and audible warnings that would help the user notice the fault and take immediate action. The crusher used for making slurry, the feeding system and any components should have the necessary safety features.
13. The biogas plant equipment shall ensure reliable, pathogen-free biogas production within the desired timeframe.
14. The contractor must ensure that all biodegradable material fed into the biogas plant is properly treated, and that there is no short-circuiting between the raw material and the biogas produced.

15. Any exposed metallic components forming part of the system shall either be adequately coated.

16. Any electrical boards attached to the outer structure of the biogas plant shall have an IP65 rating.

17. Hardware info, manuals, and schematics of connection cables shall be provided either on a CD or in a printed manual format.

18. The biogas plant shall include easy access for cleaning and maintenance purposes, ensuring efficient maintenance of the system surface.

19. The successful contractor shall be responsible for the installation and commissioning of the equipment and shall provide all technical assistance required during the operation of the Biogas Plant unit installed.

20. **Commissioning will be considered as successful only when the machine proves that:**

i. One single plant can treat 1200 KG (organic waste) per day;
ii. The manure produced shall comply with FCO norms;
iii. Efficient Biogas generation is achieved from the plant.

21. Training & Handover

The bidder shall adequately train the client's personnel to perform the following tasks:

i. System operation, including feed material supply and biogas generation.
ii. Cleaning and maintenance procedures.
iii. Safety procedures.
iv. All relevant procedures, including manuals, shall be provided in both hard and soft copies (two of each) upon commissioning.
v. Submission of operation & maintenance manuals, SOPs, and warranty documents.
vi. Formal handover after successful commissioning.

22. The successful tenderer shall provide a service of on call assistance in case of emergency.

23. The bidder shall provide a spare parts list together with a spare parts offer. The bidder shall guarantee the availability of spare parts for 10 years from the installation of the equipment.

24. One Weighing scale of 1 to 100 kg capacity (ISI approved make) shall be provided.

25. **Post-Commissioning Support**

i. Two years of warranty support covering breakdown and defect liability.
ii. Option for Comprehensive / Non-Comprehensive AMC post-warranty

26. The Bidder shall provide the Contracting Authority with the following documents according to Indian Standards:

ii. Operation and Maintenance manual
iii. Outline drawing of the fully assembled unit

These documents are essential for proper understanding, operation, and maintenance of the biogas plant.

3B.Submission of Proposals

Responses to this RFP are due by 6:00 pm on 19/10/2025. Late submittals are liable not to be

Considered. All proposals are to be sent by email to:

Contact name: Govind Singh
Organization: Saahas
Mobile: +91 9555904947/8076595348
Email: govind.singh@saahas.org

Any questions regarding this RFP should also be addressed to the above individual.

1. Timeline to RPF

Saahas intends to follow below timeline to award the tender:

1. RFP release date - 07/10/2025
2. Pre-bid Meeting date - 13/10/2025 (further communication will be made via email)
3. Proposal submission by EoD of 19/10/25.
4. Internal evaluation by 28/10/25.
5. Formal presentations and discussions with selected bidder between 25/10/25 to 04/11/25.
6. Final shortlisting, BoQ and negotiations by 10/11/25.
7. Tender to be awarded by 15/11/25.

(Note: The above dates are tentative, and Saahas reserves the right to change any dates without impact to any mutually agreed terms).

4. Commercial Conditions

1. **Pricing**:
    - The bidder must submit a **comprehensive cost** (CAPEX) covering **Design, Supply, Installation, and Commissioning (DSIC)**
    - Price must include civil, mechanical, electrical, instrumentation, and transportation inclusive of taxes (GST), transit insurance, loading /unloading, and any such other levies/ taxes that may be applicable by appropriate authority towards delivery of material at project site.

2. **Annual Maintenance Contract (AMC)**:
    - Bidders must provide separate pricing for:
        - **Comprehensive AMC** (including spares, repairs, breakdown coverage).
        - **Non-Comprehensive AMC** (daily consumable & including manpower and services).
3. **Payment Terms**:
   Payment will be released as per the following stages:
    - **20% Advance**: Against submission of a valid Bank Guarantee (BG).
    - **10%**: Against submission and approval of Civil **drawings and PFD**.
    - **50%**: Against **successful installation of the plant's machineries**.
    - **15%**: After **commissioning of the plant**, (As per defined in above)
    - **5%**: Retained and released **after completion of the warranty period**.

   Note - Invoices raised will be paid within 30 days of submission.

4. **Special Data sheet**
    - Estimated OPEX (water, electricity, manpower).
    - Carbon emission savings and fuel equivalence (PNG, LPG, CNG vs. biogas).

5. Project Timeline

The successful bidder shall adhere to the following project schedule for the design, manufacturing, erection, installation, and commissioning of the 1500 Kg/day Biogas Plant:

Overview

Sl. No	Description	Expected Plan (Saahas)	Plan Proposed by the Bidder
1	Date of Purchase Order / Award of Contract	D0 (Day 0)	
2	Complete Delivery of equipment and commissioning with associated training at project site	D0 + 120 days	

Detailed Schedule

Sl. No	Tentative Delivery Schedule	Expected Plan (Saahas)	Plan Proposed by the Bidder
1	Detailed Engineering - Plant Layout, PFD, P&ID (Full detailed layout of the plant, machineries, and pathways)	D0 + 15 days	
2	Civil Works – Biogas Plant (Construction of sheds, civil foundations, etc.)	D0 + 60 days	
3	Manufacturing & Supply of Plant Equipment at site	D0 + 60 days	
4	Erection & Installation of Equipment	D0 + 75 days	
5	Testing, Trial Runs & Inoculation	D0 + 90 days	
6	Biogas Plant Commissioning (including wet waste intake)	D0 + 120 days	

6. General Terms & Conditions

1. The bidder shall obtain all statutory approvals required for installation and operation.
2. All works must comply with **national and state environmental and safety norms**.
3. The bidder shall follow the detailed **project timeline** with milestones from design to commissioning as mentioned in Project Timeline section.
4. The client reserves the right to reject any proposal without assigning reasons.
5. Proposals must include supporting documents (experience certificates, financials, client references, etc.). Other General Instructions/ Guidelines:
6. The contractor shall be responsible for all fabrication, erection, electrical, and civil works associated with the biogas plant. These works should be carried out with utmost safety to ensure the system's continuous operation throughout its lifespan.
7. The liquid manure produced by the system should be weed-free and rich in organic carbon content, making it an excellent soil conditioner compared to other organic manures.
8. The system should be designed for easy operation and maintenance, ensuring cleanliness and preventing mosquito breeding. It should consume minimal electricity and have the capability to fully convert biodegradable waste into biogas for further consumption.
9. Liquid manure storage tank should be provided to store it.
10. The contractor is responsible for obtaining all necessary approvals, sanctions, and clearances from local, state, and central government authorities for the execution of the system.
11. The contractor shall conduct laboratory tests on the generated manure and provide the relevant certificates.

7. Agreement

A formal agreement would have to be signed between the partner and Saahas to close the deal.

Note: Saahas is not obligated to accept the lowest bid and reserves the right to reject any and all bids or amend the scope of the work. All of the Bidders must be duly licensed or otherwise have the ability to perform work in accordance with all governing local authorities and to the satisfaction of those authorities. Saahas reserves the right to hire more than one partner to supplement its requirements.

8. Contact Details

Saahas
Gurugram – 122002, C-691, Block C, Sushant Lok 1, Sector 43, Gurugram, Haryana

BOQ (Bill of Quantities) - 1500 KPD Biogas Plant							
Project	**For Design, Supply, Installation, Testing & Commissioning of 1500 Kg/day Biogas Plant Location: Rohtak, Haryana**						
SL No	**Main Systems**	**System Components**	**Description**	**Make**	**Quantity**	**Unit Rate in Rs**	**Total Amount in INR**
1	***Details of civil work & shed for biogas plant***		Contractor shall consider and quote for all civil works required for the complete functioning of the biogas plant. Site will be provided with proper leveling.		**1 Set**		
2	***Input System***	Sorting Table	SS table for basic manual segregation to remove inorganic materials.		1 set		
		Crushe/Shredder/hammer mill etc	For slurry preparation and smooth feeding to the system.		1 set		
		Pre- treatment / Hydrolysis tank	SS 304 hydrolysis tank of required volume with UPVC valves/fittings, SS drain valve, slurry mixing, screw pump & feeding pump for transfer/recirculation	**Screw Pump** : MOC - Heliflow/Alpha /Equivalent, **Feeding Pump : MOC** Crompton Greaves/Equi	1 set		
3	***Anaerobic Digestion system***	Digester tank	Suitable size digester with HRT with external anti-corrosion coating, pressure relief valve with automatic heating system along with agitator.for effective mixing in anaerobic conditions with all associated electro echanicals with consumables to treat domestic/ commercial, kitchen wet waste and food waste.		1 set		
4	***Gas Management systems***	Moisture Scrubber	MS tank with suitable volume with SS baffles for water accumulation,Scrubbing mechanism moisture condensation through atmosphere temperature change.		1 set		
		H2S Scrubber	MS tank with suitable volume, filled with iron filings and activated carbon		1 set		
		Gas Storage & Pressurized Storage Tank	Gas collection and storage system with compressor for pressurized storage. Gas to be supplied to application point at constant pressure (2–2.5 bar).		1 set		
		Automated Flaring system	Electronically fired open flare ignition system in SS enclosure, with temperature feedback and microcontroller-based operation for flow control. Integrated with switch-over valve system for excess gas flaring.		1 set		
		Gas Pipeline	(3/4" SS 304 ERW) approx. 250–400 meters in length.				
5	***Gas Monitoring & Measurement System***	Gas Flow Meter	Integrated daily gas generation tracking mechanism using universal measurement standards, e.g.: ▪ Thermocouple-based Gas Flow Meter, or ▪ Ultrasonic Gas Flow Meter.		1 No		
		Gas Analyzer	A **Gas Analyser** must be included to measure the different components of biogas (Methane %, CO_2 %, H_2S %, etc.).		1 No		
6	***Biogas Health Monitring System***	Dashboard System	Real-time monitoring dashboard equipped with tools to track plant health and ensure consistent gas production.		1 No		
7	***Slurry Storage Tank***	Slurry Tank	.MS-FRP slurry storage tank (approx. 3 cum capacity) for collection and use of biogas slurry as soil conditioner.		1 No		

8	***Electrical Control & Automation system***	Automation Panel	IP 65 panel Box powder coated , MCU, Modem, to control the complete operation of the plant and To collect the data about the digester, temperature, pressure, flaring **with 10-inch Mitsubishi HMI**		1 set		
		Power Control Panel	IP 65 Panel box powder coated with MCB, ELCB and conatactors for controlling the electrical equipments of the system		1 No		
9	***Piping and Fittings & wiring***	UPVC piping and valves	Schedule 40 UPVC pipes and valve fittings	Reputed Make	1 lot		
		Butterfly Valves	Butterfly valves with inner SS disc and CI outer body class 150	Reputed Make	1 lot		
		Cables trays	Pre galvanised 2" Cable tray with Cap	Reputed Make	1 lot		
		Insulated wires	2.5 sqm, 4 sqm, multicore pv insulated fire retardent Cable	Reputed Make	1 lot		

Note :

1. All pumps and motors shall be provided in 1 Working + 1 Standby configuration.
2. All input system components (segregation table, mixing tank, shredder frame/enclosure, hydrolysis tank) must be in SS (Stainless Steel).
3. Rates to be quoted as lump-sum under respective heads.
4. All rates must be inclusive of supply, installation, testing, commissioning, and 1-year warranty.
5. Bidders must validate quantities and propose optimized design accordingly.
6. All prices are to be inclusive of GST.